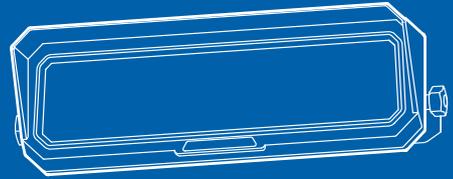# CRD-2300F/3000F

Wirelss Remote Display

CAS

NOTE

(1) The unauthorized copying of some or all of this manual is prohibited.

(2) The information contained herein is subject to change without notice.

(3) If there are any questions such as wrong or missing parts of the contents listed in this manual, please contact us.

(4) To improve the product performance, functions can be changed with no notice.

(5) Please understand that CAS does not have responsibility for a demand related to loss, lost profit etc. caused by operating the product, regardless of the third clause.

WARNING DEFINITIONS	
⚠c	This is warning & caution mark
⚠	This is hazard alert mark
ℹ	This is useful information mark

CONTENTS

1. Precautions

⚠️ Please be informed that we're not responsible for any incident or mishap caused by partial modification of this product.
To avoid such situation, customers need to contact our customer service team or system installation staff in advance, and any modification should be conducted under our surveillance.

- Do not connect incompatible adaptor.

  Use only adaptor approved by CAS for use with this particular model.

  The use of any other types may invalidate any approval or warranty, and may be dangerous.

  For availability of approved enhancements, please check with your dealer.

- Don't install the **CRD-F** series in direct sunlight.

- Avoid sudden temperature changes, vibration, wind, water or dirt.

- Avoid from the shock of excessive weight.

- Place the scale away from water.

- Use away from heavy R.F noise.

- Do not disassemble or modify this product.

2. Main Features

- Water proof: IP65

- ZigBee wireless communication

- Interface with crane scale & wheel load scale & indicator

- Standard remote control

- Tilt and swivel mount bracket

- Touch key

3. Technical Specifications

◆ **General specifications**

Display	2300F: FND (2.3 inch) / 3000F: FND (3 inch)
Display lamp	Zero, Tare, Hold, Stable, Power
Touch key	Zero, Tare, Hold, Power
Case material	Engineering plastic
Temperature range	-20℃ ~ 60℃
Product weight	2300F: Approx. 1.5kg / 3000F: Approx. 2.2kg
Adaptor	12V⎓ 1A
Option 1 (OP-01)	RS232C, RTC(Real time clock), 2solid state relays and 4inputs
Option 2 (OP-02)	Use the vehicle power (12~24V⎓)

◆ **Product size**

1) CRD-2300F
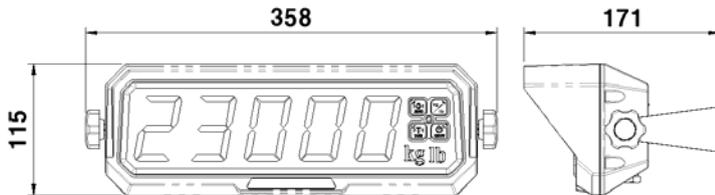
2) CRD-3000F
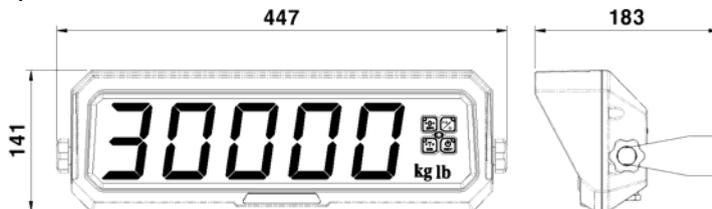
4. Description of Panels and Symbols

$$88888$$ kg lb

DISPLAY	
88888	Displays weight or messages
O	Indicates that the weight to be in stable condition
ZERO lamp	Indicates that scale is stable and at zero
Kg/lb lamp	Unit conversion operating lamp
TARE lamp	Indicates that scale is currently using a tare
Power lamp	Power lamp
kg lb	Indicates the weighing unit

KEYBOARD	
ON/OFF	Turn on and off the product
ZERO	Return the display to zero
kg/lb	Used to change unit
TARE	Used to weigh an item by using the container

5. Installation
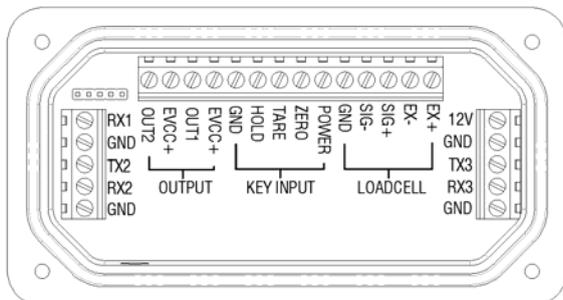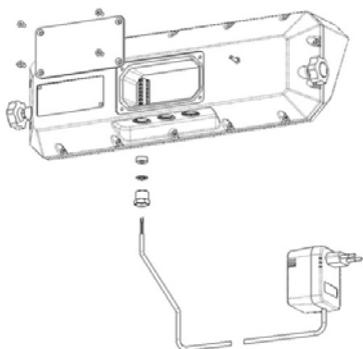
12V	Power adaptor + (RED)
GND	Power adaptor – (BLACK)
TX3	Not used (Extra RS232C TXD)
RX3	Not used (Extra RS232C RXD)
GND	Not used (Extra RS232C GND)

RX1	Not used
GND	
TX2	RS232C TXD (OP-01)
RX2	RS232C RXD (OP-01)
GND	RS232C GND (OP-01)

EX+	
EX-	
SIG+	Not used
SIG-	
GNG	
POWER	
ZERO	External key 4 contact / 4inputs (OP-01)
TARE	❶ "HOLD" mark is the same as "kg/lb"
HOLD	
GND	
EVCC+	
OUT1	
EVCC+	2 solid state relays contact (OP-01)
OUT2	

1) External input circuit
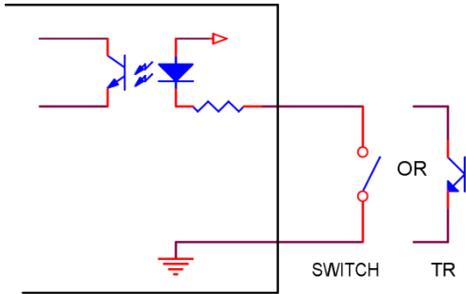
ℹ️ External inputs are interlocked with the touch keys.

2) Solid state relay circuit
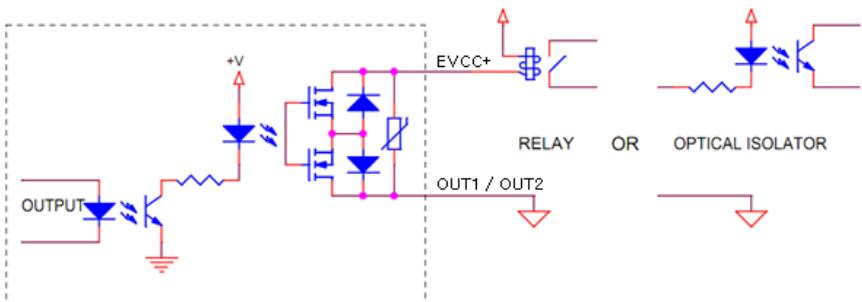
ℹ️ Maximum load (AC, DC 350V /130mA)
ℹ️ Output conditions

Output	Conditions
OUT2 ON (low limit)	Low limit< Measured value ≤ High limit
OUT1 ON (high limit)	High limit < Measured value
OUT1,2 OFF	Measured value ≤ Low limit

6. General Function

6.1. Zero function

Use to correct drifted zero value when the scale is unloaded, and motion is not detected.
This function works when ZERO KEY is pressed, and the ZERO LAMP is on.

6.2. Setting Tare Weight Function

Press the TARE KEY. Then, the scale will memorize the weight of the tare and will display
zero value "0"kg. The TARE LAMP will be on.
To escape this function, remove everything from the scale, and press the TARE KEY.
Then, the TARE LAMP will be off and this function is terminated.

6.3. Hold Function

❶ This function will only work with IR remote control.
❶ Also, F08 of CCB setting mode must be set to 4.

■ Automatic hold
- Press * KEY when the scale is empty (Initial zero state).
- The weight display will indicate $Ah\ on$. HOLD LAMP is on.
- After loading a thing, if the weight turns stable then, a display shows - - - - - and
  average weight will appear.
- The weight of a loaded thing is displayed.
- To escape the automatic hold mode, when zero point is on, press * KEY.
  Then, the message of $AhoFF$ is displayed and HOLD LAMP is off and normal weighing
  mode is reverted.

■ Manual hold
- Press * KEY loading a thing.
- This message of $HoLd$ is displayed and sequentially the message of - - - - - is
  shown with appearing the average weight.
- The weight of a loaded thing is displayed.
- To escape the manual hold mode, remove everything from a hook, or press the * KEY.
  Then, HOLD LAMP will be off and the scale changes from a hold mode to a normal mode.

7. Test Mode

(1) How to enter this mode

Press the **ON KEY** to power on and immediately press **ZERO KEY** to enter test mode.

(2) Testing Menu (TEST 1- TEST 2)

■ **TEST 1 : Keyboard Test**

Key	Remote Control	Display	Description
►0◄ ZERO	►0◄ ZERO	1	Press a keyboard that you want to test, and then the display message will be shown. If press a TARE KEY, move on TEST 2.
►T◄ TARE	►T◄ TARE	2	
kg/lb	kg/lb	3	
	＊	4	
	SUM	5	

■ **TEST 2 : Display Test**

Display	Description
8.8.8.8.8.	TEST 2 runs off automatically and a display is on. If press the TARE KEY, move on normal mode

8. Setting Mode

8.1. How to enter this mode

Press the ON KEY to power on and immediately press TARE KEY.
And press the TARE KEY again.

8.2. Keyboard

■ 🔲: Use to set up an initial zero value (0).
   (F12, F13: Used to move the input value to the left or right by one place)
■ 🔲: Use to add a value of "1" from existing value.
■ 🔲: Use to save an inputting value and to move on next menu.

8.3. Menus

■ F01: PC / Printer connection (0~2)

Setting Menu	Description
F01-0	Wireless
F01-1	RS232C
F01-2	Wireless & RS232C

ℹ In case of F01-0/2, you used the CRC-200 (Wireless dongle)
ℹ Weighing data will be sent by according to set in F02.

■ F02: Function * key (Remote controller) (0~2)

Setting Menu	Description
F02-0	Operation is equal to the * key of the master
F02-1	Send data command key (Print format)
F02-2	Send data command key (22bytes format)

■ F03: Item number (Identification number of each item) (0~9)

Setting Menu	Description
F03-0	Item No.0
F03-5	Item No.5
F03-9	Item No.9

■ F04: Print line feed (0~9)

Setting Menu	Description
F04-0	1 line feed
F04-5	6 line feed
F04-9	10 line feed

■ F05: Print form (0,1)

Setting Menu	Description
F05-0	Form 0 (weigh No., Item No., weight)
F05-1	Form 1 (Serial No., Item No., weight)

❶ When the F02-1 is selected, this form is printed.
❶ The weigh No. is not saved.

[FORM 0]

```
2014.10.13 12:00
001, ID_9,          25 lb
```

[FORM 1]

```
2014.10.13 12:00
SN_02, ID_9,        25 lb
```

■ F06: Initialization of serial number (0,1)

Setting Menu	Description
F06-0	Maintain current number
F06-1	Initialization (starting from No.1)

■ F07: Auto transmit at stable (0~2)

Setting Menu	Description
F07-0	Not used
F07-1	Send data at stable (Print format)
F07-2	Send data at stable (22bytes format)

■ F08: Auto transmit at data hold (0,1)

Setting Menu	Description
F08-0	Not used
F08-1	used

❶ The hold data will be sent by according to set in F07.

■ F09: Wireless connection of other company's product (0~2)

Setting Menu	Description
F09-0	Not used
F09-1	Product with 22bytes RS232C format
F09-2	Product with 18bytes RS232C format

ℹ If you select F09-1 or F09-2, you must use the CRC-200 dongle at the scale.

■ F10: RS232C Stream mode (0,1)

Setting Menu	Description
F10-0	Not used
F10-1	Stream mode

■ F11: High limit (not included weighing points)

Setting Menu	Description
200	20.0 lb (In case of one decimal point)

■ F12: Low limit (not included weighing points)

Setting Menu	Description
100	10.0 lb (In case of one decimal point)

9. Infrared Remote Controller

9.1. How to use

- ■ : Use to power on/off the CRD-F series
- ■ : Same as keyboard of CRD-F series
- ■ : Same as keyboard of CRD-F series
- ■ : Same as keyboard of CRD-F series
- ■ : Same as keyboard of CCB crane scale
- ■ : Used to add weights.

If press a **SUM KEY,** the sum of weights is displayed.
After that, about 2 sec later, a weighing mode is reverted.
Weight of less than 5 digits is not summed.
Maximum of sum weights is 99999, and if it exceeds
the weights is initialized to zero.

9.2. Specification

List	Description
Available Distance	6 m ~ 10 m
Available Angle	60°
Power	3V (1.5V AA 2 EA)

10. Wireless Specification

RF frequency range	2400 ~ 2483.5 MHz
Output power	Max. 4dBm
Channel width	2 MHz
Frequency offset	< ±30ppm
Transmit data rate	250Kbps,500Kbps
Receiver sensitivity	-99dBm (PER <1%)
Maximum input level	0dBm
RF In/out impedance	50 ohm (TXRF, RXRF)
Spurious(2nd harmonics)	< -30dBm
Radio link effective range	Approx. 100M (Open space)

11. RS-232C Interface

1) Type : EIA-RS-232C
2) Method : Full-duplex, asynchronous transmission Format

① Baud rate: 9600 bps
② Data bit: 8 bits
③ Code : ASCII

3) Format (22bytes)

Header 1		Header 2		ID			Data								Unit		Terminator	
S	T	,	G	S	,		,	␣	␣	␣	␣	␣	0	.	0	␣	l	b	C_R	L_F

Lamp status

	ST	Stable weight data (0x53) (0x54)
Header 1	US	Unstable weight data (0x55) (0x53)
	OL	Overload (0x4F) (0x4C)
	HD	Hold weight data (0x48) (0x44)
Header 2	GS	Gross data (0x47) (0x53)
	NT	Net data (0x4E) (0x54)
ID	Command address ID is selected in F02 (If ID is 1, 0x31 is sent)		

Lamp status	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
	1	Stable	1	Hold	1	Net	Tare	Zero

Data	Example 1) 13.5 lb ' ', ' ', ' ', ' ', '1', '3', '.', '5'
	Example 2) 135 lb ' ', ' ', ' ', ' ', '1', '3', '5', ' '
	Example 3) -13.5 lb '-', ' ', ' ', ' ', '1', '3', '5', ' '

	Kg	(0x6B) (0x67)
Unit	g	(0x20) (0x67)
	lb	(0x6C) (0x62)
Terminator	C_R L_F	(0x0D) (0x0A)

12. Real Time Clock

1) How to enter this mode
Press the ON KEY to power on and immediately press kg/lb KEY.
And press the TARE KEY.

2) Keyboard

[%/lb] : Used to increase the setting constant one by one.

[0/ZERO] : Used to move the input value to the left or right by one place.

[T/TARE] : Used to save the value and to move next menu.

Display	Description
YEAr	Year input readiness.
2014	Modify the year by pressing the numerical keys and press **TARE KEY**
dAtE	Month & date input readiness.
10 13	Modify the date by pressing the numerical keys and press **TARE KEY**
tI ME	Time input readiness.
18 00	Modify the time by pressing the numerical keys and press **TARE KEY**
End	The end

13. Wireless Pairing

Step	Operation & Description
1	*How to enter the pairing mode* **1) CCB crane scale** When the display is off, press ON/OFF key while pressing * key. When "t=40 l"(Firmware version) is displayed, press kg/lb key. Then, "r F5Et" is displayed. **2) CRD-F wireless display** Press the ON/OFF key to power on and immediately press kg/lb key. And press the kg/lb key again. Then, "r F5Et" is displayed. **3) CRC-100 controller** When the display is off, press ON/OFF key while pressing ENTER key. When "t=60 l"(Firmware version) is displayed, press3 key. Then, "r F5Et" is displayed. **4) CRC-200 wireless dongle** Press the SET KEY for the 5 seconds with the power on that connected. Then, the green light is blinking.
2	*Pairing* When "r F5Et" is displayed at both products, if you press * key of CCB crane scale, pairing will finish. ⚠ Please check "End" message at both products. If ending message is not appear, please repeat the pairing.

14. Check Message

ouEr

When a thing is over-weighed within the maximum weight value, the error message is displayed.
Do not weigh the thing whose the limit of a maximum weight value is exceeded.
If a load cell is broken, then the load cell has to be replaced.

_CX 02_

Something wrong in a Load cell connection or in an A/D conversion.
Please contact us to resolve this technical problem.

_- - - - -_

When the scale and CRD-F series does not communicate, this is displayed.
Confirm radio link effective range.

MEMO

MEMO

CRD
-2300F/3000F
Wirelss Remote Display